

## CLAIMS

What is claimed is:

1. A composition of matter comprising a solid support and a self-assembled monolayer of linear peptides bound in a pre-determined pattern to said solid support by a bond between the solid support and a terminal amino acid of the linear peptides, wherein said linear peptides comprise:
  - a) a presenting group which binds specifically to a cell surface protein; and
  - b) a central linker between the presenting group and the terminal amino acid.
2. The composition of matter according to Claim 1 wherein said solid support is a metal.
3. The composition of matter according to Claim 2 wherein said metal is selected from the group consisting of gold, copper, nickel, zinc and silver.
4. The composition of matter according to Claim 1 wherein said solid support is selected from the group consisting of silica and glass.
5. The composition of matter according to Claim 1 wherein the terminal amino acid is selected from the group consisting of serine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, histidine and arginine.
6. The composition of matter according to Claim 5 wherein said terminal amino acid is selected from the group consisting of serine, aspartic acid, glutamic acid and cysteine.

7. The composition of matter according to Claim 6 wherein said central linker comprises between 2 to 50 amino acids.
8. The composition of matter according to Claim 7 wherein said central linker is selected from the group consisting of a oligoglycine and oligoalanine.
9. A composition of matter comprising a solid support and a self-assembled monolayer of linear peptides bound in a pre-determined pattern to said solid support by a bond between the solid support and a terminal amino acid of linear peptides.
10. The composition of matter according to Claim 9 wherein said solid support is a metal.
11. The composition of matter according to Claim 10 wherein said metal is selected from the group consisting of gold, copper, nickel, zinc and silver.
12. The composition of matter according to Claim 9 wherein said solid support is selected from the group consisting of silica and glass.
13. The composition of Claim 9 wherein the linear peptides comprise a presenting group selected from the group consisting of a peptidyl group, antigen, antibody, antibody fragment, cellular adhesion motif, high chain alkyl, hydrophobically blocked amino acid and ligand and a central linker between the terminal amino acid and the presenting group.
14. The composition of Claim 13 wherein the presenting group is a peptidyl group which possesses an affinity to a target molecule.

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15. The composition of matter according to Claim 13 wherein the terminal amino acid is selected from the group consisting of serine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, histidine and arginine.
16. The composition of matter according to Claim 15 wherein said terminal amino acid is selected from the group consisting of serine, aspartic acid, glutamic acid and cysteine.
17. A method for manufacturing a composition of matter comprising a solid support and a self-assembled monolayer of linear peptides bound in a pre-determined pattern to said solid support, said method comprising the steps:
- (a) contacting an elastomeric stamp characterized by a relief of said predetermined pattern with a solution containing a compound which can react with said solid support;
  - (b) contacting said stamp with a surface of said solid support under conditions suitable for the reaction between said compound and said solid surface, wherein said compound reacts with said solid support at points of contact between said stamp and said solid support, corresponding to the relief of said predetermined pattern;
  - (c) removing said stamp; and
  - (d) contacting said solid support with a solution containing said linear peptides under conditions suitable for the reaction of said peptide and said solid support.
18. A method for culturing cells comprising the steps of:
- (a) contacting the composition of matter of Claim 1 with cells having the cell surface protein to which the presenting group specifically binds

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under conditions suitable for said cells to bind to the presenting group;  
and

(b) maintaining said cells under conditions suitable for growth.

19. A method for culturing cells comprising the steps of:

- (a) contacting the composition of matter of Claim 9 with cells under conditions suitable for said cells to bind to the peptides; and
- (b) maintaining said cells under conditions suitable for growth.

20. A method for assaying the presence of a target in a sample comprising the steps of:

- (a) contacting said sample with the composition of matter of Claim 9 said linear peptides possess an affinity for said target; and
- (b) detecting the presence of said target on said composition of matter.

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